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FOLEY AND LARDNER
SUITE 500
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WASHINGTON, DC 20007

EXAMINER

THOMPSON, JAMES A

ART UNIT PAPER NUMBER

2624

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/671,153

Applicant(s)

FUSE, HIROYUKI

Examiner

James A Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 7, lines 11-15, filed 05 August 2004, with respect to the rejection of claim 1 under 35 U.S.C. §112, 2nd paragraph, have been fully considered and are persuasive. The rejection of claim 1 under 35 U.S.C. §112, 2nd paragraph has been withdrawn.

2. Applicant's arguments, see page 7, line 16 to page 9, line 19, filed 05 August 2004 have been fully considered but they are not persuasive.

Applicant's arguments are directed to the amended claims and not to the rejections of the claims as originally filed. The prior art rejections of the claims are discussed in detail below.

Claim Rejections - 35 USC §102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sasanuma (US Patent 5,719,681).

Regarding claim 1: Sasanuma discloses an image forming apparatus (figure 2 of Sasanuma) for forming an image on an image forming medium (column 4, line 66 to column 5, line 3 of Sasanuma) and capable of forming a specific hidden pattern for

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specifying an apparatus (column 10, lines 30-33 of Sasanuma) at a specific position on said medium (column 10, lines 25-29 of Sasanuma).

Said apparatus comprises hardware control signal supplying means (figure 2(409) of Sasanuma) for generating and supplying a hardware control signal (H) representing that data exists when color image data exists in the image forming apparatus (column 5, line 64 to column 6, line 6 of Sasanuma); software control signal supplying means (figure 2(414(portion)) of Sasanuma) for generating and supplying a software control signal (PS) for determining whether said specific hidden pattern is added to a color image (column 9, lines 55-60 of Sasanuma); and specific hidden pattern control signal synthesizing means (figure 2 (414(portion)) of Sasanuma) for synthesizing a control signal by which said specific hidden pattern is necessarily formed on an output image when either the hardware signal or the software signal exists (column 10, lines 55-62 of Sasanuma). Said software control signal (PS) and said hardware control signal (H) are compared and the comparison result is used to determine if said specific hidden pattern is necessarily formed on an output image (column 10, lines 55-62 of Sasanuma). The signal generated by the comparison of said software control signal and said hardware control signal is said synthesized control signal. The CPU (figure 2(414) of Sasanuma) performs the operations of the software control signal supplying means (column 9, lines 55-57 of Sasanuma) and the specific hidden pattern control signal synthesizing means (column 10, lines 55-57 of Sasanuma). The software control signal supplying means and the specific hidden pattern control signal synthesizing means are the corresponding portions of the CPU, along with the associated physically

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embodied software, that performs the functions of said software control signal supplying means and said specific hidden pattern control signal synthesizing means.

Claim Rejections - 35 USC §103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2-16 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Sasanuma (US Patent 5,719,681) in view of Burns (US Patent 5,936,741).

Regarding claim 2: Sasanuma discloses image data supplying means (figure 2(210-1, 210-2, 210-3, and 401-406) of Sasanuma) for supplying color image data (column 5, lines 26-33 of Sasanuma). CCD line sensors (figure 2(210-1,210-2,210-3) of Sasanuma) detect RGB signals and output digital representation of the RGB signals (column 5, lines 26-33 of Sasanuma). Delay elements (figure 2(401-402) of Sasanuma) compensate for delays resulting from the physical spacing of said CCD line sensors (column 5, lines 34-37 of Sasanuma). The log converters (figure 2(403-405) of Sasanuma) convert brightness to density (column 5, lines 38-40 of Sasanuma) and the masking UCR circuit (figure 2(406) of Sasanuma) converts the RGB data to CMYK data (column 5, lines 40-46 of Sasanuma).

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Sasanuma further discloses data existence/absence confirming means (figure 3(301-303,310) of Sasanuma) for confirming the existence/absence of image data in said image forming apparatus (column 5, lines 64-67 of Sasanuma). Portions (figure 3(301-303,301) of Sasanuma) of the determination circuit (figure 2(409) of Sasanuma) determine the existence/absence of specific originals that should not be copied (column 5, lines 64-67 of Sasanuma). The remaining portion is the maximum value circuit (figure 3(309) of Sasanuma), which outputs the determination signal, as discussed below.

Sasanuma further discloses that said hardware control signal supplying means generates and supplies said hardware control signal (H) based on the existence/absence of image data confirmed by said confirming means (column 5, line 67 to column 6, line 3 of Sasanuma); that said software control signal supplying means generates and supplies said software control signal (PS) for adding said specific hidden pattern (column 9, lines 55-57 of Sasanuma); and that said control signal synthesizing means synthesizes said control signal in such a manner that said specific hidden pattern is necessarily formed on a color image (column 9, lines 54-60 of Sasanuma) when a usual image is formed on said image forming medium based on said hardware control signal (H) and said software control signal (PS) (column 10, lines 55-62 of Sasanuma).

Sasanuma further discloses hidden pattern generating means (figure 11(906-909) of Sasanuma) for generating said specific hidden pattern (column 9, lines 54-55 and column 9, line 65 to column 10, line 9 of Sasanuma). The registers (figure 11(906-909) of Sasanuma) store the hidden pattern values (column 9, lines 54-55 of Sasanuma). One of said patterns is specifically

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selected to be output (column 9, line 65 to column 10, line 4 of Sasanuma), and then added to the signal (column 10, lines 5-9 of Sasanuma).

Sasanuma further discloses pattern selecting means (figure 11(910) of Sasanuma) for selecting and outputting one of said specific hidden pattern based on said control signal synthesized by said control signal synthesizing means (column 9, line 65 to column 10, line 4 of Sasanuma); and image formation output signal synthesizing means (figure 11(912) of Sasanuma) which synthesizes said color image data supplied from said image data supplying means and said specific hidden pattern selected by said pattern selecting means when said image data is inputted (column 9, lines 58-60 and column 10, lines 5-9 of Sasanuma).

Sasanuma does not disclose expressly a test pattern generating means for generating and outputting a test pattern when a color image is not formed; that said pattern selecting means can further select said test pattern based on said control signal synthesized by said control signal synthesizing means; and that said image formation output signal synthesizing means outputs said test pattern selected by said pattern selecting means when said color image data is not inputted.

Burns discloses test pattern generating means (figure 2(28) of Burns) for generating and outputting a test pattern (figure 1(10) of Burns) when an image is not formed (column 8, lines 34-37 of Burns). The test pattern is printed on the entire medium, as clearly shown in figure 1(10) of Burns, therefore a particular scanned image is not being formed on said medium. Said test pattern can be selected based on a control signal (column 7, lines 55-60 of Burns).

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Sasanuma and Burns are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to including a test pattern generating means, as taught by Burns, and include the test pattern as a selection in the pattern selection means taught by Sasanuma. Said test pattern would then be output when there is no image data for said image forming apparatus, as taught by Burns, and output for each of the colors of the image forming apparatus taught by Sasanuma. The motivation for doing so would have been that a test pattern is used to properly calibrate the apparatus (column 7, lines 55-57 of Burns). Therefore, it would have been obvious to combine Burns with Sasanuma to obtain the invention as specified in claim 2.

Regarding claim 3: Sasanuma discloses that said hardware control signal (H) generated by said hardware control signal supplying means is a signal which affects the addition of said specific hidden pattern (column 10, lines 58-62 of Sasanuma) and which avoids the normal formation of a usual image when said signal is abnormal (column 10, lines 62-65 of Sasanuma).

Regarding claim 4: Sasanuma discloses that said hardware control signal can be generated by software when said signal is set (figure 15 and column 10, lines 58-62 of Sasanuma). After said hardware control signal (H) is set, said software control signal (PS) is compared with said hardware control signal (column 10, lines 59-61 of Sasanuma). Since said comparison is performed with software (column 5, lines 55-58 and column 9, lines 55-57 of Sasanuma), it is inherent that, after said hardware control signal is set, said hardware control signal is generated by software. Otherwise, a comparison signal in

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software with which to compare said software control signal would not exist.

Regarding claim 5: Sasanuma discloses that said specific hidden pattern generated by said hidden pattern generating means is a special pattern formed by using colors or patterns which are hard to be identified by the naked eye (column 10, lines 10-14 of Sasanuma) in such a manner that a body of an image forming apparatus which has formed an image can be specified from a reproduced image on said medium, even if a specific original which must not be inherently formed is formed on said medium (column 10, lines 14-19 of Sasanuma).

Regarding claim 6: Sasanuma discloses that said data existence/absence confirming means generates said hardware control signal for said hardware control signal supplying means (column 5, line 64 to column 6, line 3 of Sasanuma), when image data is supplied from said image data supplying means (column 5, lines 64-66 of Sasanuma).

Regarding claim 7: Sasanuma discloses that said control signal synthesizing means comprises circuitry for calculating a comparison of said hardware control signal supplied from said hardware control signal supplying means and said software control signal supplied from said software control signal supplying means (column 10, lines 55-62 of Sasanuma), and outputs a control signal by which a specific hidden pattern is selected and necessarily added to an image (column 10, lines 5-9 of Sasanuma). The CPU (figure 2(414) of Sasanuma) is inherently comprised of circuitry such as OR circuits, circuits that perform comparisons, AND circuits, and register circuits, among others. It is through applying software to a plurality of the circuits comprising CPUs that CPUs function. The functions that

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software codes perform determine which circuits comprising the CPU are used.

Sasanuma does not disclose expressly that said OR circuit comprising said control signal synthesizing means calculates the logical OR of said hardware control signal supplied from said hardware control signal supplying means and said software control signal supplied from said software control signal supplying means, and outputs a control signal by which a specific hidden pattern is necessarily added to an image when one of said hardware control signal and said software control signal is supplied.

Burns discloses specifically setting a test pattern to be printed by setting a control signal (column 8, lines 57-60 of Burns).

Sasanuma and Burns are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically set said software control signal (PS) if a particular hidden pattern is desired. Therefore, if either said hardware control signal (H) or said software control signal (PS) is set to a particular hidden pattern, said hidden pattern will be selected for output. This effectively calculates a logical OR of said hardware control signal supplied from said hardware control signal supplying means and said software control signal supplied from said software control signal supplying means. The motivation for doing so would have been to select a set of image data that is appropriate to the current system conditions (column 8, line 66 to column 9, line 2 of Burns). Therefore, it would have been

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obvious to combine Burns with Sasanuma to obtain the invention as specified in claim 7.

Regarding claim 8: Sasanuma discloses that said pattern selecting means comprises a selector (figure 11(910) of Sasanuma) for selecting said specific hidden pattern generated by said hidden pattern generating means with said control signal (column 9, line 66 to column 10, line 4 of Sasanuma) for adding said specific hidden pattern to an output image as a selected input by said control signal synthesizing means (column 10, lines 5-9 of Sasanuma).

Regarding claim 9: Sasanuma discloses that said image formation output signal synthesizing means outputs to a printer engine (column 5, lines 4-7 of Sasanuma) an image formation signal by which a hidden pattern (column 10, lines 10-13 of Sasanuma) using a predetermined color or pattern is added (column 10, lines 29-33 of Sasanuma) at a predetermined position of an image to be formed (column 10, lines 27-29 of Sasanuma) by adding said specific hidden pattern supplied from said pattern selecting means to said image data supplied from said image data supplying means (column 10, lines 5-9 of Sasanuma).

Regarding claim 10: Sasanuma discloses that said image data supplying means comprises a yellow data supplying apparatus (figure 2(406) of Sasanuma) for supplying yellow image data to each of said image formation output signal synthesizing means and said hardware control signal supplying means (column 5, lines 41-46 of Sasanuma). The masking-UCR circuit (figure 2(406) of Sasanuma) supplies image data for each of the four CMYK colors (column 5, lines 41-46 of Sasanuma) including yellow image data (column 5, lines 43-44 of Sasanuma). The part of

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said masking-UCR circuit that specifically supplies the yellow image data corresponds to the yellow data supplying apparatus.

Regarding claim 11: Sasanuma discloses that said hardware control signal supplying means comprises a portion which outputs a signal (H) (column 5, line 64 to column 6, line 3 of Sasanuma) selecting a specific hidden pattern (column 10, lines 55-62 of Sasanuma). Said hidden pattern is yellow image data (column 10, lines 10-11 of Sasanuma) formed in specific size blocks which are repeated throughout the output image (column 10, lines 27-29 of Sasanuma). Said yellow image data is output to an external printer (column 9, lines 61-64 of Sasanuma). The specific size blocks are therefore comprised of external yellow sub scanning direction (column 10, line 29 of Sasanuma) image data based on said yellow image data (column 10, lines 10-11 of Sasanuma). The output of said hardware control signal supplying means would therefore be a -YVDEN signal enabling an external yellow sub scanning direction image based on said yellow image data.

Regarding claim 12: Sasanuma discloses that said control signal synthesizing means comprises circuitry for calculating a comparison of said -YVDEN signal (H) supplied from said hardware control signal supplying means and an output signal (PS) from a specific pattern addition signal generating register (column 10, lines 55-62 of Sasanuma), and outputs a control signal by which a specific hidden pattern is selected and necessarily added to an image (column 10, lines 5-9 of Sasanuma). The CPU (figure 2(414) of Sasanuma) is inherently comprised of circuitry such as OR circuits, circuits that perform comparisons, NOT circuits, and register circuits, among others. It is through applying software to a plurality of the circuits comprising CPUs that CPUs function. The functions that software codes perform

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determine which circuits comprising the CPU are used. The use of said circuits would therefore further include a register which generates a signal (PS) for adding a specific pattern since said signal requires storage in some form. Furthermore, it would be an obvious design choice to use a single active-low signal bit for said -YVDEN signal (H) and a single active-high signal bit for said output signal (PS) from said specific pattern addition signal generating register, since use of such single bit signals would simply indicate whether or not a hidden pattern is to be used. The use of a single bit for a signal and the use of an active low signal are old, well-known and commonly used in the digital data processing arts.

Sasanuma does not disclose expressly that said control signal synthesizing means comprises a NOT circuit which inverts said external yellow sub scanning direction image enabled signal (-YVDEN) outputted from said -YVDEN output portion as said hardware control signal supplying means and an OR circuit for calculating the logical OR of an output from said NOT circuit and an output signal from a specific pattern addition signal generating register as said hardware control signal supplying means.

Burns discloses specifically setting a test pattern to be printed by setting a control signal (column 8, lines 57-60 of Burns).

Sasanuma and Burns are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically set said output signal (PS) if a particular hidden pattern is desired. Therefore, if either said -YVDEN signal (H) or said output signal (PS) is set

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for outputting a hidden pattern, then a hidden pattern will be selected for output. Said -YVDEN signal (H) would have to be inverted in order to coincide with the same digital logic as said output signal (PS). This effectively calculates a logical OR of the inverted -YVDEN signal and said output signal. The motivation for doing so would have been to select image data when said image data is appropriate to the current system conditions (column 8, line 66 to column 9, line 2 of Burns). Therefore, it would have been obvious to combine Burns with Sasanuma to obtain the invention as specified in claim 12.

Regarding claim 13: Sasanuma discloses that said data existence/absence confirming means generates a hardware control signal in said hardware control signal supplying means (column 5, line 64 to column 6, line 3 of Sasanuma). Said hardware control signal (H) selects a specific hidden pattern (column 10, lines 55-62 of Sasanuma). Said specific hidden pattern is comprised of specific size blocks of image data which are tiled across the output image (column 10, lines 27-29 of Sasanuma) and printed on an external printer (column 9, lines 61-64 of Sasanuma). An external printer inherently requires some form of control signal for controlling drive of a paper carrying motor for carrying paper. Said paper is the image forming medium (column 5, lines 16-19 of Sasanuma). Therefore, the hardware control signal is based on a control signal for controlling drive of a paper carrying motor for carrying paper as said image forming medium.

Regarding claim 14: Sasanuma discloses that said pattern selecting means comprises a selector (figure 11(910) of Sasanuma) for selecting said specific hidden pattern generated by said hidden pattern generating means with said control signal

(column 9, line 66 to column 10, line 4 of Sasanuma) by which said specific hidden pattern is added to an output image by said control signal synthesizing means as a selected input (column 10, lines 5-9 of Sasanuma).

Regarding claim 15: Sasanuma discloses that said hidden pattern generating means comprises a specific pattern generating portion (figure 11(909-910) of Sasanuma) for generating a specific hidden pattern (column 9, lines 54-55 and column 9, line 65 to column 10, line 4 of Sasanuma). A specific pattern (P4) is stored in a register (figure 11(909) of Sasanuma) (column 9, lines 54-55 of Sasanuma) and selected by a selector (figure 11(910) of Sasanuma) when the appropriate input signal is received (column 9, line 65 to column 10, line 4 of Sasanuma).

Regarding claim 16: Sasanuma discloses that said image formation output signal synthesizing means comprises an adder (figure 11(912) of Sasanuma) which outputs to a printer engine an image formation signal (column 10, lines 5-9 of Sasanuma) by which a hidden pattern using a predetermined color or pattern is added (column 10, lines 10-11 of Sasanuma) at a predetermined position of an image to be formed (column 10, lines 27-29 of Sasanuma) by adding said image data supplied from said image data supplying means and said specific hidden pattern supplied from said pattern selecting means (column 10, lines 5-9 of Sasanuma).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
29 November 2004



Thomas D.
~~LEE~~ LEE
PRIMARY EXAMINER